PENNSYLVANIA RAILROAD COMPANY *v.* LOCOMOTIVE ENGINE SAFETY TRUCK COMPANY.

APPEAL FROM THE CIRCUIT COURT OF THE UNITED STATES FOR THE EASTERN DISTRICT OF PENNSYLVANIA.

Argued October 12th, 1883.—Decided March 3d, 1884.

Patent.

The application of an old process or machine to a similar or analogous subject, with no change in the manner of applying it, and no result substantially distinct in its nature, will not sustain a patent, even if the new form of result has not before been contemplated.

In trucks already in use on railroad cars, the king-bolt which held the car to each truck passed through a bolster supporting the weight of the car, and through an elongated opening in the plate below, so as to allow the swivelling of the truck upon the bolt, and lateral motion in the truck; and the bolster was suspended by divergent pendent links from brackets on the frame, whereby the weight of the car tended to counteract any tendency to depart from the line of the track. *Held*, That a patent for employing such a truck as the forward truck of a locomotive engine with fixed driving wheels was void for want of novelty.

Suit in equity for alleged infringement of letters patent for an improvement in trucks for locomotives by the employment of pilot wheels to allow of lateral motion to the engine. The defence was: 1st. Public use for more than two years before the patentee's application; 2d. Want of novelty. The court below found that the invention had been in use on cars prior to the patent, but not as applied to locomotives, and a decree was entered sustaining the patent, from which the defendant below appealed.

Mr. George Harding, *Mr. A. McCallum*, and *Mr. F. F. Chambers* for appellant.

Mr. S. S. Hollingsworth and *Mr. Edmund Wetmore* for appellee.

Mr. Justice Gray delivered the opinion of the court.

This is an appeal by the defendant below from a decree against it upon a bill in equity for the infringement of letters

patent granted on February 11th, 1862, to Alba F. Smith, for an improvement in trucks for locomotive engines, the specification annexed to which, except the drawings and the letters referring to them and the formal beginning and conclusion, was as follows:

"Several laterally moving trucks have heretofore been made and applied to railroad cars. My invention does not relate broadly to such laterally moving trucks; but my said invention consists in the employment, in a locomotive engine, of a truck or pilot wheels provided with pendent links, to allow of a lateral movement, so that the driving wheels of the locomotive engine continue to move correctly on a curved track, in consequence of the lateral movement allowed by said pendent links, the forward part of the engine travelling as a tangent to the curve, while the axles of the drivers are parallel, or nearly so, to the radial line of the curve. In the drawing, I have represented my improved truck itself. The mode of applying the same to any ordinary locomotive engine will be apparent to any competent mechanic, as my truck can be fitted in the place of those already constructed, or the same may be altered to include my improvement."

The specification then refers to the drawings, showing the wheels, the axles, and the frame of any ordinary locomotive truck, made in any usual manner, with the centre cross-bearing plate or platform, of two thicknesses of iron plate riveted together, strengthened by cross-bars beneath, and embracing at its ends the upper bars of the frame; a bolster, made of a flanged bar; the king-bolt, passing through the centre of the bolster and also through an elongated opening in the plate, so as to allow of lateral motion to the truck beneath the bolster, and at the same time becoming a connection to hold the truck to the engine; the bolster taking the weight of the engine in the middle, and itself suspended at the ends of bars attached to the moving ends of pendent links attached by bolts at their upper ends to brackets on the frame, and the distance between the bars, transversely of the truck, slightly more than between

the bolts, so that the pendent links diverge slightly. The specification then proceeds:

"When running upon a straight road, the engine preserves great steadiness, because any change of position transversely of the track, in consequence of the engine moving over the truck, or the truck beneath the engine, is checked by the weight of the engine hanging upon the links, and, in consequence of their divergence, any side movement causes the links on the side towards which the movement occurs to assume a more inclined position, while the other links come vertical, or nearly so; hence the weight of the engine acts with a leverage upon the most inclined links, to bring them into the same angle as the others, greatly promoting the steadiness of the engine in running on a straight line. As the pilot or truck wheels enter a curve, a sidewise movement is given to the truck, in consequence of the engine and drivers continuing to travel as a tangent to the curve of the track. This movement, and the slight turn of the whole truck on the king-bolt, not only causes the wheels to travel correctly on the track, with their axles parallel to the radial line of the curve of track, but also elevates the outer side of the engine, preventing any tendency to run off the track upon the outer side of the curve. Upon entering a straight track, the truck again assumes the central position, and in case of irregularity in the track, or any obstruction, the truck moves laterally, without disturbing the movement of the engine.

"I do not claim laterally moving trucks, nor pendent links, separately considered; but what I claim, and desire to secure by letters patent, is the employment, in a locomotive engine, of a truck or pilot wheels fitted with the pendent links, to allow of lateral motion to the engine, as specified, whereby the drivers of said engine are allowed to remain correctly on the track, in consequence of the lateral motion of the truck, allowed for by said pendent links when running on a curve, as set forth."

The invention then, as claimed, is for the combination, with a locomotive engine, of a truck, of which the king-bolt, forming the connection to hold the truck to the engine, passes through a bolster, and through an elongated opening in the plate or platform of the truck, so as to allow the truck to have a lateral

motion beneath the bolster; and the bolster takes the weight of the engine in the middle, and is suspended from the frame of the truck by pendent and slightly divergent links, so that any movement of the engine or truck sidewise, as in entering upon or passing over a curve of the track, causes the links on the side toward which the engine moves to assume a more inclined position, and the other links to become nearly vertical, and the weight of the engine, hanging upon the links, checks its own lateral movement, and tends to bring both sets of links back to their original angle.

In railroad cars, the trucks were allowed to swivel around the king-bolt before 1841; the transverse slot and pendent links, allowing a lateral motion, were used by Davenport and Bridges in 1841; in 1859 Kipple and Bullock made the pendent links divergent; and at the time of Smith's invention the trucks of railroad cars had all the elements of the truck put by him under the front of a locomotive engine.

The question therefore is, whether employing, as the forward truck of a locomotive engine with fixed driving wheels, a truck already in use on railroad cars, has the novelty requisite to sustain a patent.

After carefully considering the evidence and arguments in this case, and the reasons assigned for sustaining Smith's patent, in the opinion of the court below, reported in 1 Banning & Arden, 470, and in the opinion rendered by the Circuit Court in the Second Circuit in *Locomotive Engine Safety Truck Co.* v. *Erie Railway Co.*, reported in 6 Fisher Pat. Cas. 187, and in 10 Blatchford, 292, this court finds itself unable to escape from the conclusion that the application of the old truck to a locomotive engine neither is a new use, nor does it produce a new result.

In both engine and car, the increased friction against the rails and the danger of being thrown off the track, in entering upon or passing along a curve, are due to the impulse of forward motion in a direction tangential to the curve, and to the influence of centrifugal force. In the engine, as in the car, the object and the effect of the transverse slot, allowing a slight lateral motion, and of the divergent pendent links, by means of

which the weight of the engine or car itself helps to keep it upon the track, are to secure steadiness and safety by lessening the friction against the rails and the danger of being thrown off the track. The only difference is, that by reason of the fixed position of the driving wheels of the engine, the truck, which has before been applied at each end of a car, can only be applied at the forward end of the engine, and therefore the accommodation of the movement of the engine to the curve of the track may be less complete than in the case of the car. The effect of the invention upon the engine, as compared with its effect upon the car, is the same in kind, though perhaps less in degree.

It is settled by many decisions of this court, which it is unnecessary to quote from or refer to in detail, that the application of an old process or machine to a similar or analogous subject, with no change in the manner of application, and no result substantially distinct in its nature, will not sustain a patent, even if the new form of result has not before been contemplated. *Hotchkiss* v. *Greenwood*, 11 How. 248; *Phillips* v. *Page*, 24 How. 164, 167; *Jones* v. *Morehead*, 1 Wall. 155, overruling *S. C. nom. Livingston* v. *Jones*, 1 Fisher Pat. Cas. 521; *Hicks* v. *Kelsey*, 18 Wall. 670; *Smith* v. *Nichols*, 21 Wall. 112; *Brown* v. *Piper*, 91 U. S. 37; *Roberts* v. *Ryer*, 91 U. S. 150; *Keystone Bridge Company* v. *Phœnix Iron Company*, 95 U. S. 274, 276; *Planing Machine Company* v. *Keith*, 101 U. S. 479, 491; *Pearce* v. *Mulford*, 102 U. S. 112; *Heald* v. *Rice*, 104 U. S. 737, 754–756; *Atlantic Works* v. *Brady*, 107 U. S. 192.

In the well known case of *Crane* v. *Price*, in which the English Court of Common Pleas upheld a patent for using anthracite, instead of bituminous coal, with the hot blast in smelting iron ore, the evidence, as Chief Justice Tindal remarked, proved beyond doubt that, in the result of the combination of the hot air blast with the anthracite, not only was the yield of the furnace more, and the expense of making the iron less, but "the nature, properties and quality of the iron were better," than under the former process by means of the combination of the hot air blast with bituminous coal. 4 Man. & Gr. 580, 604; 5

Scott N. R. 338, 389; 1 Webster Pat. Cas. 393, 410. And the decision rests, as was pointed out by Chief Baron Pollock and Baron Parke in *Dobbs* v. *Penn*, 3 Exch. 427, 432, 433, and by Mr. Justice Bradley in *Hicks* v. *Kelsey*, above cited, upon the ground that a new metal or composition of matter was produced. As observed by Mr. Justice Bradley, "in compositions of matter a different ingredient changes the nature of the compound, whereas an iron bar in place of a wooden one, and subserving the same purpose, does not change the identity of a machine." 18 Wall. 674.

So in *Smith* v. *Goodyear Dental Vulcanite Company*, in this court, as was observed by Mr. Justice Strong, in delivering its judgment, "A new product was the result, differing from all that had preceded it, not merely in degree of usefulness and excellence, but differing in kind, having new uses and properties." 93 U. S. 486, 494. See also *Goodyear Dental Vulcanite Company* v. *Davis*, 102 U. S. 222.

Upon the principles which must govern this case, the decisions of this court and of the highest courts of England are in full accord, as will appear by referring to three cases, fully argued and considered, all of which were carried to the Exchequer Chamber, and two of which were finally decided in the House of Lords.

In *Bush* v. *Fox*, a patent for constructing the interior of a caisson or cylinder with successive chambers to work in, "in such manner that the work-people may be supplied with compressed air, and be able to raise the material excavated, and to make or construct foundations and buildings," under water, when a similar apparatus had already been used for working underground on land, was held by Chief Baron Pollock, by the Court of Exchequer Chamber, and by the House of Lords, to be void for want of novelty, after able arguments in support of the patent by Sir Alexander Cockburn, then Attorney-General, and by Mr. Webster, the accomplished patent counsel, at the successive stages of the case. Macrory Pat. Cas. 152, 167, 179; 9 Exch. 651; 5 H. L. Cas. 707.

So the Court of Queen's Bench held that the finishing of yarns of wool or hair by a process previously applied to yarns of cot-

ton and linen, by subjecting them, while distended and kept separate, to the action of rotatory beaters or burnishers, by which they would be burnished or polished on all sides, was not the subject of a patent, because, as Lord Campbell said, in order to sustain a patent for the application of an old process to a new purpose, "there must be some invention in the manner in which the old process is applied;" "here there is no novelty in the mode of application," "but merely the application of a known process by a known means to another substance." *Brook* v. *Aston*, 27 Law Journal (N. S.) Q. B. 145; *S. C.* 4 Jurist (N. S.) 279; *S. C.*, with the opinion less fully reported, 8 E. & B. 478. The judgment was unanimously affirmed in the Exchequer Chamber. Of the opinions there delivered, it is sufficient to quote from that of Baron Martin, who, after expressing his concurrence in the statement of Mr. Justice Willes, in *Patent Bottle Envelope Company* v. *Seymer*, 28 Law Journal (N. S.) C. P. 22, 24; *S. C.* 5 C. B. (N. S.) 164, 173; that "the application of a well known tool to work previously untried materials, or to produce new forms, is not the subject of a patent," added, "When a machine is well known, it becomes in fact a tool." 28 Law Journal (N. S.) Q. B. 175, 176; 5 Jurist (N. S.) 1025, 1027.

But perhaps the most important English case is that of *Harwood* v. *Great Northern Railway Company*, 2 B. & S. 194, 222, and 11 H. L. Cas. 654.

In that case a patent was obtained for "improvements in fishes and fish joints for connecting the rails of railways." In the specification, the patentee stated that in securing the joints of rails it had been found advantageous to attach to each side of the rails, by means of bolts and rivets, pieces of iron commonly called "fishes;" and described his invention as consisting in making the fishes with a groove or recess in their outer surfaces, so as to receive the square heads of the bolts or rivets, and to prevent them from turning round while the nuts on the other side were being screwed on or off, and also to avoid the danger of the flanges of the wheels of the carriages striking against the heads; and he claimed "the constructing fishes for connecting the rails of railways, with a groove adapted for re-

ceiving the heads of the bolts or rivets employed for securing such fishes, and the application of such fishes for connecting the rails of railways."

In an action for the infringement of that patent, it appeared that fishes for connecting the rails of railways had never before been made with a groove or recess in their outer surfaces, so as to receive the square heads of the bolts. But it was proved that, in the construction of several railway bridges, beams of timber had been laid horizontally one above the other, and fastened or bolted together with bolts and nuts; horizontal bars or plates of iron placed beneath, parallel to and in contact with the beams, and fastened or bolted by the same bolts and nuts; and each of these bars or plates of iron constructed with a groove in its under surface, which received the square heads of the bolts, and which served the double purpose of strength and of preventing the heads of the bolts from turning round. In those bridges there were no joints to be fished by the bars or plates of iron, nor were there corresponding bars or plates of iron above the horizontal beams of timber. But it was also proved that a bridge, known as the Hackney bridge, having too great a span to be conveniently crossed by a single beam, had been constructed with two horizontal longitudinal beams of timber on each side, the ends of which met and were joined together in the middle of the bridge by scarf-joints; that beneath those beams were transverse planks, constituting the flooring of the bridge, and beneath the planks were bars of grooved iron, like those used in the other bridges, carried under the scarf-joints and under the whole length of the horizontal beams; that above and immediately over each scarf joint, extending eighteen inches beyond each end of the joint, and resting immediately upon the longitudinal beam, was a horizontal flat plate of iron thirteen feet in length; and that the bolts passed upwards through the grooved iron bars, the transverse planking and the longitudinal beams, and also, at the middle of the bridge, through the plates of iron over the scarf-joints.

A verdict supporting the patent was obtained under the rulings of Lord Chief Justice Cockburn, and affirmed by the Court of Queen's Bench. But its judgment was unanimously

reversed in the Exchequer Chamber in a considered judgment delivered by Mr. Justice Willes; and the judgment of reversal was affirmed by the House of Lords, in accordance with the opinions of Lord Chancellor Westbury, Lord Cranworth and Lord Wensleydale, and of a majority of the judges who attended, upon the ground, as stated by the Lord Chancellor, that the application of the channelled iron horizontally under the timbers of a bridge being well known, "the channelled iron was applied in a manner which was notorious, and the application of it to a vertical fish would be no more than the application of a well known contrivance to a purpose exactly analogous or corresponding to the purpose to which it had been previously applied." 11 H. L. Cas. 683. And all who gave opinions in the House of Lords concurred with the Court of Exchequer Chamber in the proposition of law that the mere application of an old contrivance in an old way to an analogous subject, without any novelty in the mode of applying such old contrivance to the new purpose, is not a valid subject-matter of a patent. 2 B. & S. 228; 11 H. L. Cas. 666, 672, 682, 684, 685.

In the case at bar, the old contrivance of a railroad truck, swivelling upon the king-bolt, with transverse slot, and pendent divergent links, already in use under railroad cars, is applied in the old way, without any novelty in the mode of applying it, to the analogous purpose of forming the forward truck of a locomotive engine. This application is not a new invention, and therefore not a valid subject of a patent.

The decree of the Circuit Court must therefore be reversed, and the case remanded with directions to *Dismiss the bill.*